

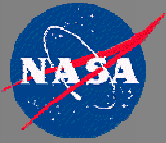
NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION

**Joint Working Groups Breakout Session
November 15th**

Fifth Earth Science Data Systems Working Group
Meeting

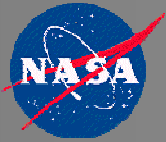
College Park, MD

November 14 - 16, 2006



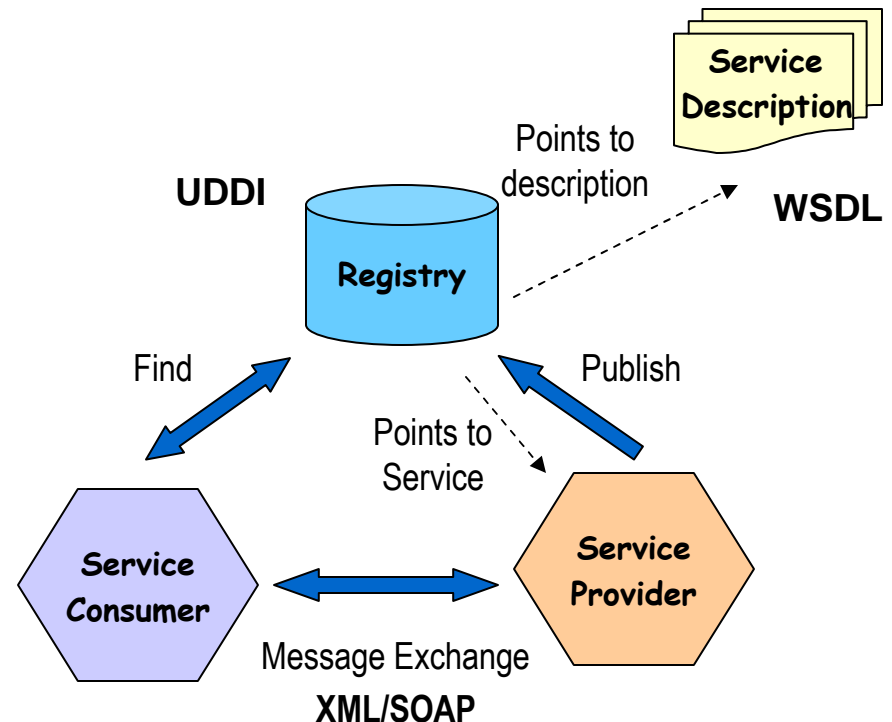
- Discussion of various topics of relevance to all of the working groups.
 - Reuse of Web Services (Robert Wolfe)
 - Technology Readiness Levels (Karen Moe)
 - Standards As a Way of Enabling Reuse (Rich Ullman)
 - New Challenges for the Working Groups (Rob Raskin)

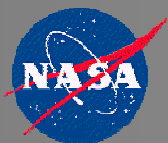




Reuse of Web Services

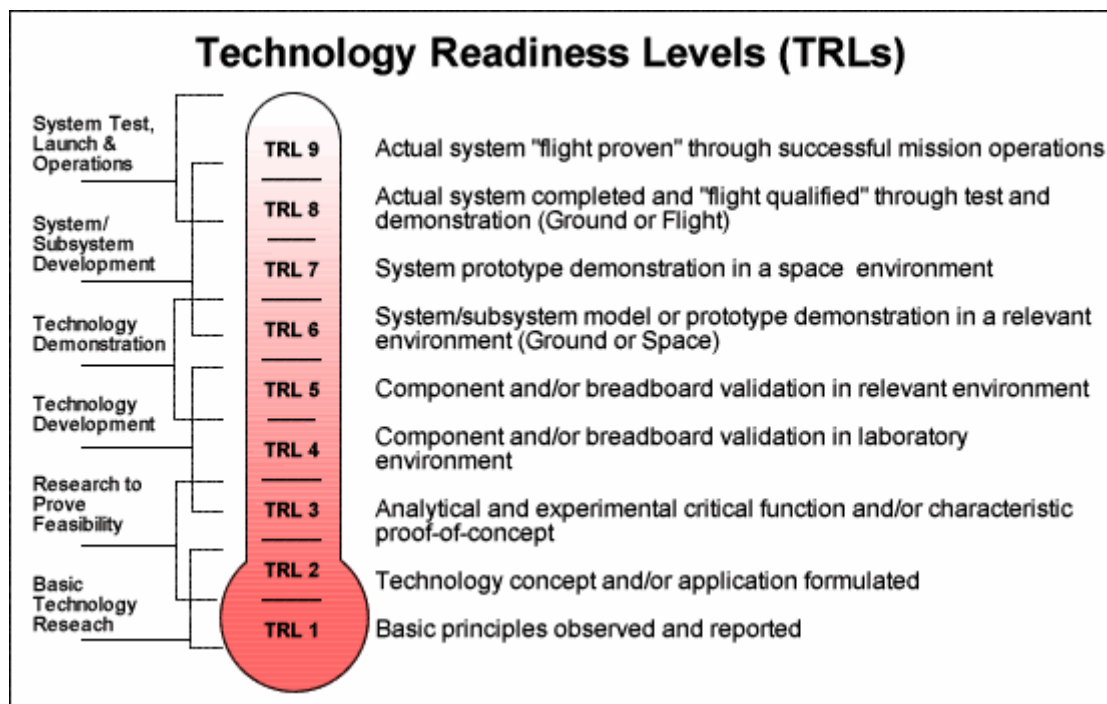
- What are the differences between component reuse and web services reuse?
- What WS protocols and standards do you use?
- What are the obstacles in constructing web services?
- How do you find a web service to serve your needs?
- What is the value in using BPEL?
- What can the software reuse portal do to help people get started or use web services?

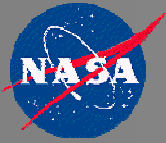




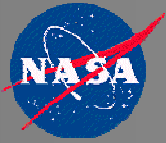
Technology Readiness Levels

- How do they apply to working group activities?
- Where do they fit into standards?



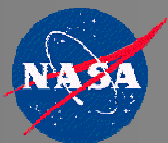


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- TRL 1: Basic principles observed and reported
 - Basic properties of algorithms, representations & concepts. Mathematical formulations. Mix of basic and applied research.
 - TRL 2: Technology concept and/or application formulated
 - Basic principles coded. Experiments with synthetic data. Mostly applied research.
 - TRL 3: Analytical and experimental critical function and/or characteristic proof-of-concept
 - Limited functionality implementations. Experiments with small representative data sets. Scientific feasibility fully demonstrated.
 - TRL 4: Component and/or breadboard validation in laboratory environment
 - Standalone prototype implementations. Experiments with full-scale problems or data sets.
 - TRL 5: Component and/or breadboard validation in relevant environment
 - Prototype implementations. Experiments with realistic problems. Simulated interfaces to existing systems.



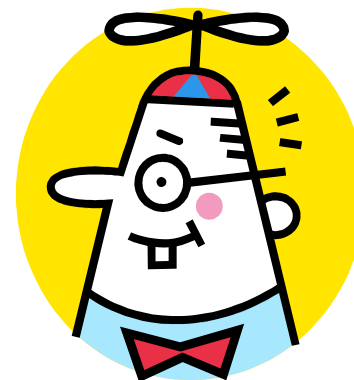
TRLs Applied to Software cont.

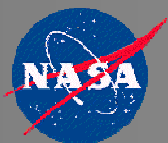
- TRL 6: System/subsystem model or prototype demonstration in a relevant environment (Ground or Space)
 - Prototype implementations if the software is on full-scale realistic problems. Partially integrated with existing hardware/software systems. Limited documentation available. Engineering feasibility fully demonstrated.
- TRL 7: System prototype demonstration in a relevant environment
 - Most of the software is functionality available for demonstration and test. Well integrated with operational hardware/software systems. Most software bugs removed. Limited documentation available.
- TRL 8: Actual system completed and “flight qualified” through test and demonstration (Ground or Flight)
 - Thoroughly debugged software. Fully integrated with operational hardware and software systems. Most user documentation, training documentation, and maintenance documentation completed. All functionality tested in simulated and operational scenarios. V&V completed.
- TRL 9: Actual system “flight proven” through successful mission operations
 - Thoroughly debugged software. Fully integrated with operational hardware/software systems. All documentation has been completed and users have successful operational experience. Sustaining software-engineering support in place. Actual system fully demonstrated.



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ESDS Tech Infusion Working Group

Standards As a Way of Enabling Reuse





- What are the implications of some of the new and emerging technologies for the working groups?
 - Examples: Google Earth, storage technologies, sensor web, data fusion, streaming data, data stewardship, GIS, portal technologies, scalable analysis portals / distributed applications / SOA, virtualization.
- How do we better communicate the findings of the working groups to the wider Earth science community.

